DOCUMENT RESUME

ED 360 579 CG 024 956

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TITLE The Use of the Vineland Adaptive Behavior Scales to Predict Accurate Social Perception.
PUB DATE Mar 93
NOTE 23p.; Poster presented at the Annual Meeting of the Southeastern Psychological Association (39th, Atlanta, GA, March 24-27, 1993).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Adjustment (to Environment); Adults; *Interpersonal Competence; *Mental Retardation; *Personality Traits; Prediction; Sex Differences; *Social Cognition
IDENTIFIERS *Vineland Adaptive Behavior Scales

ABSTRACT

Adaptive behavior refers to behaviors that demonstrate an age-appropriate level of adjustment and independence within one's cultural group. Many adaptive behaviors involve social perception, which may be described as knowing who does what, with whom, where, and when. The demonstration of these behaviors may be an important factor in the ability of an individual with mental retardation to successfully integrate into the community. This study examined social perception among 48 mentally retarded adults classified as having either moderate or severe deficits in adaptive behavior by the Vineland Adaptive Behavior Scales. Participants listened to stories detailing social interactions in which a character exhibited warmth or dominance, and were asked to choose one picture from two choices of the man who was the character in the story. As past research has demonstrated that baby-faced people are perceived as warm and kind, and mature-faced people are viewed as dominant, the pictures depicted a mature- and a baby-faced choice. The results indicated that males with moderate deficits in adaptive behavior consistently made accurate attributions of warmth to the baby-faced man and dominance to the mature-faced man. Moreover, neither chronological age nor intelligence quotient were positively related to attribution accuracy. The results indicated that the Vineland measure is a determinant of socially-adaptive skills for some mentally retarded people. (Author/NB)

The Use of the Vineland Adaptive Behavior Scales to Predict Accurate Social Perception.

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Running Head: SOCIAL PERCEPTION

Poster presented at the annual meeting of the Southeastern Psychological Association, March, 1993. The authors gratefully acknowledge the cooperation and support of the staff and clients of Rowan County Vocational Workshop and the Association of Retarded Citizens. Appreciation is extended also to Elizabeth Marino for assistance with data collection, Lyn Boulter for administering Vinelands to the ARC participants, Cindy Stephens for assisting in the retrieval of diagnostic data from client records, and Jane Copley for clerical assistance. Correspondence should be addressed to the second author at the Department of Psychology, Catawba College, Salisbury, NC 28144.

Abstract

Forty-eight mentally-retarded individuals (22 males, 26 females) classified as having either moderate or severe deficits in adaptive behavior by the Vineland Adaptive Behavior Scales participated in a study designed to examine social perception. Participants listened to stories detailing social interactions in which a character exhibited warmth or dominance, and were asked to choose one picture from two choices of the man who was the character in the story. As research (cf. Berry & McArthur, 1985) has demonstrated that babyfaced people are perceived as warm and kind, and maturefaced people are viewed as dominant, the pictures depicted a mature- and babyfaced choice. The results indicated that males with moderat deficits in adaptive behavior consistently made accurate attributions of warmth to the babyfaced man and dominance to the maturefaced man. Moreover, neither chronological age nor I. Q. were positively related to attribution accuracy. The results indicate that the Vineland is a determinant of socially-adaptive skills for some mentally-retarded people.

The Use of the Vineland Adaptive Behavior Scales to Predict Accurate Social Perception.

Professionals in the field of mental retardation traditionally relied only on I. Q., as determined by a standardized intelligence test, to diagnose individuals as mentally retarded (Baroff, 1986; Zigler, Baila, & Hodapp, 1984). However, the I. Q. score is a measure of rate of development, obtained by dividing cognitive mental age by chronological age, and does not predict one's ability to perform age-appropriate behaviors within the framework of one's home and community (Baroff, 1986; Zigler, et al., 1984). The consideration of "deficits in adaptive behavior", as related to "subaverage general intellectual functioning", was included in the current definition of mental retardation by the American Association on Mental Retardation (AAMR), in an attempt to resolve the inadequacy of I.Q. alone as a predictor of general competency at functioning independently in society (Baroff, 1986; Kirk & Gallagher, 1989).

Adaptive behavior refers to behaviors that demonstrate an age-appropriate level of adjustment and independence within one's cultural group (Baroff, 1986; Kirk & Gallagher, 1989; Zigler et al., 1984). Many adaptive behaviors involve social perception, which may be described as knowing who does what, with whom, where, and when. The demonstration of these behaviors may be an important factor in the ability of an individual with mental retardation to successfully integrate into the community. However, Baroff (1986) realizes that even those who recognize the importance of the including "deficits in adaptive behavior" in the criteria for diagnosing mental retardation find the task of describing behaviors that are actually related to the adaptive functional-living skills of mentally-retarded people in the community to be very complex. The challenge to explore and measure the components of adaptive behavior makes examining those behaviors in contexts other than cognitive and learning worthwhile, as it is necessary to identify those behaviors that truly contribute to daily living skills.

The theoretical assumptions of the ecological approach of social perception provided by McArthur and Baron (1983) proves fertile ground for examination of adaptive behavior as related to individuals with mental retardation. The assumptions hold that perception serves as an adaptive function with the environment providing information to guide behavior. Specifically, the physical appearance of people provides information as to what they may be like and how they might behave. This information is readily noticed by the perceiver, and in turn guides the perceiver's actions. At the most basic level, perceivers need to know whom to approach and whom to avoid.

One line of research that has blossomed from ecological theory concerns the judgment of character, abilities, dominance, and warmth of people who vary in facial maturity. Specifically, maturefaced people are seen as cold, physically strong, capable, and shrewd, whereas babyfaced people are perceived as honest, warm, physically weak, and approachable (Berry & Brownlow, 1989; Berry & McArthur, 1985; 1986; Keating & Bai, 1986; Zebrowitz & Montepare, 1992). McArthur and Baron (1983) have suggested that people overgeneralize the psychological characteristics of children to adults who manifest the physical characteristics of infants. Thus, those adults who retain juvenile features (i.e., large, round eyes, round cheeks, small chins) are perceived as being warm, approachable, and weak.

Impressions of the baby- and maturefaced have been replicated crossculturally (Zebrowitz-McArthur & Berry, 1987) and hold true for perceivers and targets across the lifespan (Zebrowitz & Montepare, 1992). More importantly, perceptions of the baby- and maturefaced are accurate (Berry, 1990; 1991; Berry & Brownlow, 1989; Berry & Finch-Wero, in press) as babyfaced people report themselves to be more honest, warm, and powerless than do maturefaced people. Thus, social perception does serve as an adaptive function, with the information gained via the facial maturity of the target providing the basis for the knowledge of the consequences of the behavioral

decisions of the perceiver.

Validation of the ecological approach to social perception has not been limited to adults alone as Keating & Bai (1986) inadvertently discovered that children attributed dominance to maturefaced adults. Further research by Montepare & McArthur (1989) revealed that by age three children correctly distinguished between adult male baby- and maturefaces, and by age four and one-half distinguished between adult female baby- and maturefaces. Additionally, these children attributed greater warmth to the babyfaced males and dominance to the maturefaced males. These findings demonstrated that the trait identification based on the facial maturity of a target occurs in the young, and therefore at young developmental ages.

Baroff (1986) describes persons with mental retardation as having psychological needs as well as biological needs that require interaction with the environment to be fulfilled. Mental retardation does not necessarily exclude these individuals from the task meeting needs through first perceiving and then acting on the social environment. In fact, social perception involving knowing whom to approach and whom to avoid, despite a young developmental age due to mental retardation, may be especially important.

As research has documented the universality of attributing certain personality traits to targets relative to their facial maturity, an opportunity is provided to examine whether the mentally-retarded population possesses this universal adaptive skill. This issue is relevant because critics of inclusion of "deficits in adaptive behavior" in the current definition of mental retardation cite the lack of universality in adaptive skills as one cause (Baroff, 1986). Given that three- to six-year old children in the Montepare and McArthur (1989) study discriminated between baby- and maturefaced adults and made correct attributions of characteristics, the expectation arises that mentally-retarded adults with adaptive-skill ages similar to the chronological ages of those children would accurately distinguish between face types and make like attributions.

Additionally, the diagnostic information available on mentally-retarded adults through participation in special programs makes possible the examination of the use of various diagnostic tools and accuracy in performance of the adaptive skill of facial-maturity related trait attributions. Of particular interest is the value of specific tools to measure adaptive behavior as none have gained general acceptance from professionals in the field of mental retardation (Baroff, 1986). Such tools include the Vineland Adaptive Behavior Scales, which include the ability to identify familiar and preferred individuals, as well as other communication, daily-living, and socialization skills in the assessment of an adaptive level of functioning (Sparrow, Baila, & Cecchetti, 1984). The Vineland produces an adaptive-skill age based on the mastery of certain age-related adaptive skills. Unlike other indices, the adaptive-skill age reflects the age at which an individual is functioning adaptively rather than general cognitive ability, and was expected to be an accurate determinant of the ability to make personality attributions according to facial maturity.

Method

Participants

Forty-eight mentally-retarded individuals (22 males, 26 females) attending a sheltered workshop and a compensatory education program were recruited for the study. Chronological ages ranged from 20 to 63 years with mean and median ages 39.17 and 38.00 years, respectively. Consent was obtained from the parents or guardians of participants as well as from the participants, except in cases where there was certainty that incompetency had not been adjudicated.

All participants were scored on the Vineland Adaptive Behavior Scales (Sparrow et al.,1984). The Vineland yields a level of deficit (mild, moderate, severe, or profound) in adaptive skills, as well as an adaptive-skill age. Only those classified as moderate or severe participated. The mean adaptive age of moderate-deficit participants was 8 yrs. and 1 month with the mean of severes 5 yrs. and 1 month. The

participants were free of physically-limiting conditions that inhibit performance of skills included on the Vineland. I. Q. scores were available on fr of the participants. The mean I. Q.s of moderates and severes were 46.70 and 34.20, respectively. I. Q.s were taken from psychological reports less than five years old.

Selection of Stimulus Materials

Stimulus faces. The stimulus faces were 4- X 6-in., black and white photographs of the head and shoulders of two babyfaced and two maturefaced adult males selected from those utilized by Berry and McArthur (1985). The faces had been reliably judged on the dimensions of facial maturity and attractiveness by adults on a 7-point scale with high values indicating greater babyishness. The mean facial maturity ratings of the baby- and maturefaced males were 5.15 and 2.70, respectively. Attractiveness ratings of the babyfaces were 3.88 and 3.11, with ratings of maturefaces 3.63 and 3.28. Attractiveness scores were within 1/2 SD of the mean of attractiveness, while facial maturity scores were outside 1 SD of the babyishness mean.

Four sets of pictures pairs were made from the four stimulus faces. Each set contained two different pairings of a baby- and matureface. Each of the four faces appeared in each set, although picture positions were counterbalanced across the sets. Picture pairs were mounted on black construction paper, covered in plastic, and arranged by sets in a 3-ring notebook.

Stories. The four stimulus stories presented social scenarios in which the main character exhibited warmth or dominance in an interaction. Two warmth and two dominance stories were chosen from those utilized by Montepare and McArthur (1989). The stories appear in the Appendix. A female speaker prepared four sets of story pairs from the four stimulus stories on audio tape. Each set contained one warmth and one dominance story. Across the sets, each warmth story was paired with each dominance story. The order of story presentation was counterbalanced across the sets.

Design

The twenty-two males and twenty-six females were divided according to moderate and severe deficits in adaptive behavior utilizing the scores on the Vineland Adaptive Behavior Scales as the determining factor. Moderates and severes were randomly assigned to picture and story sets so that each gender and level of functioning were exposed to all possible combinations of picture and story sets. A 2 (Gender) X 2 (Level of Functioning) between-subjects design resulted.

Procedure

The procedure generally replicated that of Montepare and McArthur (1989) in which younger and older children made judgments about the warmth and dominance of babyfaced and maturefaced adults.

Following the signing of the consent form, the participant was told to look at the pictures, listen to the stories, and point to a picture choice according to the directions in the story. The notebook then was opened to the first pair of pictures and the tape started. The notebook was held so that only the participant could view the pictures to prevent cuing from the experimenter. Ten s were allowed for the response. After 30 s, the procedure was repeated with the second picture pair and story. The picture pairs were then presented twice more, and the participant made a judgment of the most handsome and the most babyish man in the picture pairs. These judgments were made in random order. Attractiveness and babyish choices were made after those of warmth and dominance choices so as not to influence the latter by these explicit labels (see Montepare & McArthur, 1989). Following these judgments, the participant was dismissed.

As in the Montepare and McArthur (1989) study, the choice of the babyfaced man was considered correct for warmth stories with the correct choice for dominance stories being the maturefaced man. A score of zero, one, or two was given according to the number of correct identifications. Faces chosen as "most handsome" were

noted.

Results

Discrimination of Babyfaces

In order to determine if mentally-retarded adults could accurately distinguish the babyfaces from the maturefaces, one sample t-tests were utilized to compare the mean number of correct identifications of faces to the chance level of 1. Only a marginal difference was found between the number of identifications by the entire sample (M = 1.13) and the chance level, $t(47) = 1.35$, $p = .09$, one-tailed. In order to determine whether any particular group within the sample was able to make correct identifications, similar t-tests were computed within sex, level of functioning, and within level of functioning for each sex. The results of these analyses are located in Table 1. Only females (M = 1.23) exceeded chance $t(25) = 1.81$, $p < .04$, one-tailed, in making correct identifications.

Insert Table 1 About Here

Attributions as a Function of Gender and Level of Functioning

To examine the impact of gender and level of functioning on attributions, the number of correct attributions were entered in a 2 (Gender) X 2 (Level of Functioning) ANOVA. No main effect for gender emerged, $F < 1$, however, a marginal main effect for level of functioning revealed that moderates (M = 1.29) made slightly more correct trait attributions than severes (M = .91), $F(1, 44) = 3.35$, $p < .07$. As can be seen in Figure 1, a marginally significant Gender X Level of Functioning interaction emerged, $F(1, 44) = 3.35$, $p < .07$. Scheffé tests (alpha = .10) indicated that male moderates (M = 1.50) made marginally more correct trait attributions than male severes (M = .70), but that female moderates and severes responded in a like manner (both Ms = 1.08).

Insert Figure 1 About Here

Accuracy of Warmth and Dominance Attributions

While the ANOVA demonstrated differences among groups on attributions, it did not provide evidence of accuracy in those attributions. To ascertain if correct attributions of warmth to babyfaced adults and dominance to maturefaced adults were made, one sample t-tests were used to compare the mean number of correct trait attributions to a chance level of 1. These tests were calculated for the entire sample, within sex, within level of functioning, and within level of functioning for each sex. The results of these analyses can be found in Table 2. No reliable difference was found between the number of identifications by the entire sample ($M = 1.10$) and the chance level, $t(47) < 1$, ns. Only the moderate group ($M = 1.28$) exceeded the chance level on their attributions, $t(24) = 2.28$, $p < .02$, one-tailed; but within the moderates only the males ($M = 1.50$) performed better than chance, $t(11) = 3.32$, $p < .01$, one-tailed. No other groups or subgroups made identifications at a rate better than would be expected by chance.

Insert Table 2 About Here

Surprisingly, the accuracy data revealed that ability to make correct attributions was not related to ability to accurately name the babyish and mature faces. Indeed, these factors were not correlated, $r(46) = .08$, ns.

Explanations for Attribution Accuracy: Participant Characteristics

The impact of other characteristics of participants, including I.Q., chronological age, and adaptive skill age on attribution accuracy was examined. Each of these factors was correlated with accuracy, and then entered separately in parallel 2 (Gender) X 2 (Level of Functioning) ANOVAs.

Surprisingly, I.Q. scores, available for 40 of the participants, were not correlated with accuracy, $r(38) = .07$, ns. In the ANOVA, no main effect for gender was shown, $F(1, 36) = 1.66$, ns, although, as expected, differences for level of functioning emerged.

I.Q.s of moderates (M = 46.70) were significantly higher than I.Q.s of severes (M = 34.25), F (1, 36) = 14.44, p < .01. No reliable Gender X Level interaction was produced, F < 1, ns. However, examination of the mean I.Q.s of participants, shown in Table 3, revealed higher I.Q.s for female moderates (M = 49.90) than for male moderates (M = 43.78), excluding the possibility that male moderates made significantly more accurate warmth and dominance attributions due to higher I.Q. Thus I.Q., which is not related to attribution accuracy, does not serve as a good indicator of ability on this social perception task.

Insert Table 3 About Here

Chronological age and number of correct attributions were not significantly related, r(46) = -.21, ns, and the ANOVA with age as the dependent measure produced no significant effects, all Fs (1, 44) ≤ 2.35, ns. Examination of the mean chronological ages of participants, given in Table 3, revealed that although both male (M = 40.90) and female (M = 42.23) severes and female moderates (M = 37.23) were older than the male moderates (M = 36.50), the possibility that male moderates made significantly more accurate attributions because they were of a significantly different age than other participants is negated.

Adaptive-skill age, as measured by the Vineland (scores of which were available for 47 participants), was marginally correlated with accuracy in attributions, r(45) = .28, p < .07. When entered as the dependent measure in a 2 (Gender) X (Level of Functioning) ANOVA, the results revealed that Vineland scores did not differ according to gender, F (1, 43) < 1, ns. As expected, a main effect for level of functioning was produced with the mean adaptive-skill age of moderates (M = 7.68) significantly higher than the mean adaptive-skill age of severes (M = 4.88), F(1, 43) = 53.77, p < .001. No Gender X Level of Functioning interaction emerged, F(1, 43) < 1, ns. However, examination of the mean Vineland scores of participants, appearing in Table 3, reveals

an older adaptive-skill age for both male and female moderates (Ms = 7.87 and 7.51, respectively). Thus, the Vineland does serve as a measure of adaptive skill on the task in question, and is marginally related to ability to make accurate attributions.

Explanations for Attribution Accuracy: Characteristics of Stimuli and Task

In order to determine if an attractiveness response bias influenced attribution choices of the participants, zero was scored when the same picture was chosen for both the attribution and most handsome judgments, and one when the choices were different. A one sample t-test was used to compare the mean sample score to a value of zero as zero represented the same choice for both attributions and handsome judgments. Comparisons were done with responses to each of the two picture pairs separately. Results from the first (M = .52) and second (M = .60) response analyses demonstrated that different pictures were chosen for attribution and most handsome judgments reliably more than the same pictures, $t(47) = 7.15$ and $t(47) = 8.47$, both ps $< .01$. Thus the attractiveness of stimulus faces did not influence judgments of attributions.

Visual inspection of the data revealed that 12 participants (three moderate and three severe males, one moderate and five severe females) consistently chose the same picture to each question (attribution, handsome, babyish), suggesting a possible response bias. This bias was not isolated to any specific picture or story pair. To examine the effect of this bias, the attribution judgments of these participants were deleted from the sample and the number of correct attributions for the remaining sample were entered in a 2 (Gender) X 2 (Level of Functioning) ANOVA. As before, no main effect for gender was produced, $F < 1$, although a main effect for level of functioning revealed that moderates (M = 1.38) made more correct trait attributions than did severes (M = .87), $F(1, 32) = 5.74$, $p < .02$. A marginal Gender X Level interaction emerged, $F(1, 32) = 2.83$, $p < .10$. Scheffé tests (alpha = .05) indicated that male moderates (M = 1.67) made more correct trait attributions than male severes (M =

.71), although females did not differ (M moderate = 1.17, M severe = 1.00). While the data of the response-biased participants did not change the overall results of the study, the mean number of accurate attributions increased for each gender and level of functioning, with the exception of the female severes.

One final explanation for the pattern of attributions concerns the nature of the stories and pictures used. At present this study is being replicated with normal adults in order to determine whether the stories adequately presented warmth and dominance and whether correct attributions to the faces are made by normal subjects.

Discussion

This study demonstrated that some adults with mental retardation, specifically males with moderate deficits in adaptive skills, do make correct attributions of warmth to babyfaced males and dominance to maturefaced males. The ability to make correct attributions was related to the adaptive-skill age as determined by the Vineland Adaptive Behavior Scales rather than to chronological age or I.Q. as those individuals with the oldest adaptive skill-age rather than the oldest chronological age or highest I.Q. made the most correct attributions.

Surprisingly, this study revealed no relationship between the ability to overtly distinguish among persons who varied in facial maturity and the ability to make accurate attributions according to facial maturity. As indicated by the manipulation check analyses, females were able to distinguish among the mature and babyfaced individuals, and as can be see in Table 3, females had the highest I.Q.s within the level of functioning grouping, although these differences did not manifest themselves in a significant Gender X Level of Functioning interaction. Thus facial maturity discriminations may have relied on cognitive ability, whereas attributions of traits by facial maturity, or accurate social perception, is best predicted by the Vineland. Baroff (1986, p. 27) offers one further explanation for this lack of relationship, in that mentally-retarded individuals have a concreteness of thought due to developmental lags. The

impact of this characteristic of preoperational thinking may be what prompted several participants to respond "neither one of them are babies, they are both men!", when asked to judge which of the stimulus faces was most babyish.

Chronological age also showed no relationship to successful completion of the task. Baroff (1986, p. 51) describes chronological age during the developmental period as important to the behavioral expectancies for mentally-retarded individuals specifically in the areas of self-help and motor skills, as merely living longer provides more opportunity to practice skills and thus produces greater competency in self-help. Our results may suggest a ceiling effect for competency via age and practice, or limitations in practice as a valued tool in acquisition of social perception skills as no differences were noted in the number of correct attributions by younger and older individuals. Perhaps, too, there was a cohort effect as younger individuals have been exposed to more social programs, thus attenuating any age-related benefits in self-help skills.

The results of this study have implications for both the literature on social perception and for professionals in the field of mental retardation. The finding that some mentally-retarded individuals recognize and react to people of differing facial maturity is consistent with research (e.g., Zebrowitz & Montepare, 1992; Zebrowitz-McArthur & Berry, 1987) that suggests that the ability to make personality attributions according to facial maturity is universal, and supports an ever-growing body of literature documenting consistent impressions of those who vary in facial maturity (Berry, 1990; Berry & McArthur, 1986).

One challenge for professionals in the field of mental retardation is to determine a pattern of strengths and weaknesses of clients in all skill areas. That challenge necessitates the use of tools to assess the level of functioning. While I.Q. and mental age are important indicators of cognitive ability, these measures alone neither tell the whole story nor predict the degree of integration a mentally-retarded individual may

achieve (Baroff, 1986, p. 25). As deficits in adaptive behavior are included in the definition of mental retardation there can be little doubt that adaptive living skills are important to the successful integration of individuals with mental retardation into the community and society in general.

Social perception as an adaptive function may be particularly valuable to mentally-retarded individuals as knowing whom to approach and whom to avoid may be an indicator of the degree of success these individuals may experience in meeting needs through daily interactions with others, and therefore, provide indices to integration potential and planning. The use of a social perception task may add another dimension to the study, understanding, and clarification of functional social capabilities. Although the task requires far more testing with a larger population and different populations, as well as with female pictures, it is possible that, with modification, the task may be considered a valid indicator of functional social abilities. However, until the results of further research is available, the Vineland Behavior Scales offers the capability to distinguish between individuals with mental retardation who demonstrate accurate social perception skills and those who do not.

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Appendix.

Warmth and Dominance Stories

Warmth

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1. Look at these two people. They want to play with a little kitten, but they have to be very gentle. Can you point to the person who will say, "I'll be very gentle?"

2. Look at these two people. One of them is very kind and likes to share things with his friends. Can you point to the kind person?

Dominance

---

1. Look at these two people. They are going on a trip together. Can you point to the person who looks like the leader of the trip and tells the other person what to do?

2. Look at these two people. They want to play a game together. Can you point to the person who will say, "I'll make up the rules?"

From Montepare and McArthur (1989).

Table 1.

Correct Identifications of Babyfaces According to Gender and Level of Functioning.

Group	Mean Number of Correct Identifications	df	1-tail p
Males	1.00	21	ns
Females	1.23	25	.04
Moderates	1.12	24	ns
Severes	1.13	22	ns
Male Moderates	1.00	11	ns
Male Severes	1.00	9	ns
Female Moderates	1.23	12	ns
Female Severes	1.23	12	.10
Total sample	1.13	47	.09

Note. Comparisons are made to a chance level of one.

Table 2.

Mean Number of Correct Attributions of Warmth and Dominance According to Gender and Level of Functioning.

Group	Mean Number of Correct Attributions	df	1-tail p
Males	1.14	21	ns
Females	1.08	25	ns
Moderates	1.28	24	.02
Severes	0.91	22	ns
Male Moderates	1.50	11	.004
Male Severes	0.70	9	ns
Female Moderates	1.08	12	ns
Female Severes	1.08	12	ns
Total sample	1.10	47	ns

Note. Comparisons are made to a chance level of one.

Table 3.

I.Q., Chronological Age, and Vineland Scores of Participants According to Gender and Level of Functioning.

	Level of Functioning			
	Moderate		Severe	
Gender	Male	Female	Male	Female
Measure:				
I.Q.[a]	43.78	49.09	32.50	35.58
Chronological Age	36.50	37.23	40.90	42.23
Vineland[a]	7.87	6.51	4.87	4.89

Note: ns per cell are distributed for I.Q., Chronological Age, and Vineland Score as follows: Male Moderates ns = 9, 12, and 12; Male Severes ns = 8, 10, and 10; Female Moderates ns = 11, 13, and 13; Female Severes ns = 12, 13, and 12.

[a] = main effect for Level of Functioning ($p \leq .01$).

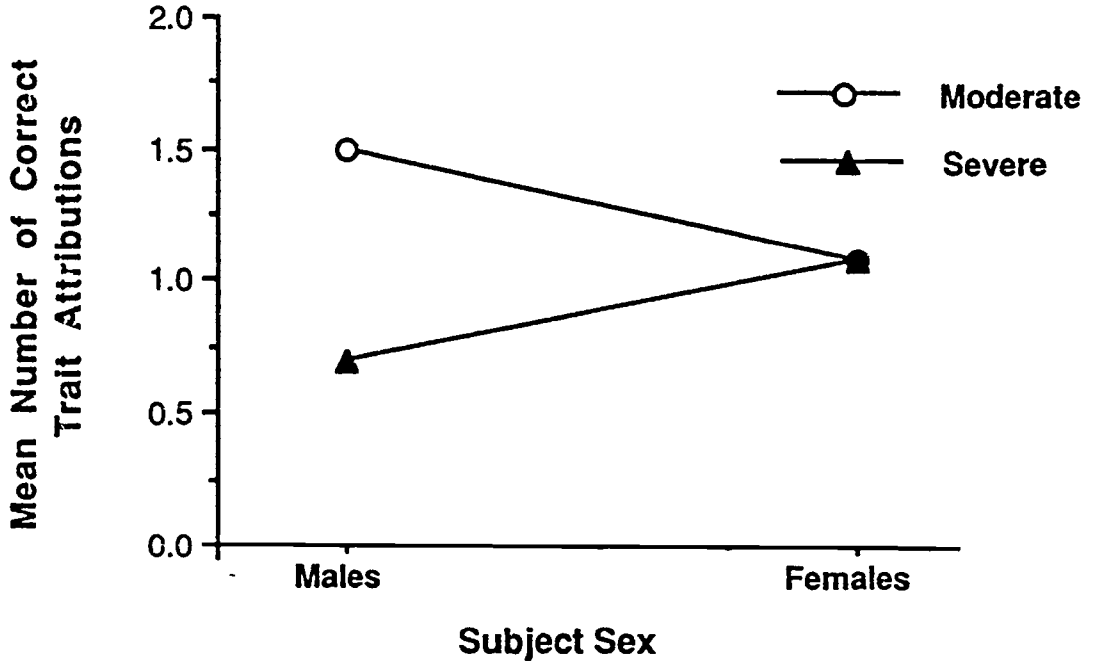

Figure 1. Attribution Accuracy as a Function of Gender and Level of Functioning.